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CLIMATE AND THE SYDNEY 2000 OLYMPIC GAMES

The Olympic Games are the largest sporting event in the world. During the Sydney 2000 Olympic Games, more than 15,000 athletes and team officials are expected to be involved in 28 sports; during the Sydney Paralympic Games, some 7,000 athletes and team officials will be involved in 18 sports.

Local climate factors such as heat, humidity and wind are important considerations in preparing for and organising the Olympic Games. Information about the local climate and thermal comfort is important for athletes to attain peak performance. Athletes have the ability to precondition themselves to varying climates by training in climatic conditions similar to those in which they will compete. Chill and Heat Indexes are also used as tools by coaches, as indicators of the effect on playing conditions of the climate elements. In Sydney, both indices are likely to remain in the comfort zone during September and October.

The extensive records held by the Bureau of Meteorology archives have been analysed for the period 1 September to 31 October 2000 (see table S2.1). This covers the time from when the competitors arrive at the Olympic Village, through the Olympic Games themselves (15 September to 1 October), until the conclusion of the Paralympic Games (18 - 29 October).

S2.1 CLIMATE ALMANAC FOR SYDNEY

| Day | Maximum temperatures (°C) | | | Minimum temperatures (°C) | | | Frequency of rain (%) | | |
|-----------|---------------------------|---------|------|---------------------------|--------|------|-----------------------|-------|--------|
| | Mean | Highest | Year | Mean | Lowest | Year | All rain | >=2mm | >=10mm |
| SEPTEMBER | | | | | | | | | |
| 1 | 18.4 | 27.5 | 1865 | 9.7 | 5.1 | 1864 | 29 | 14 | 4 |
| 2 | 18.9 | 28.2 | 1865 | 9.6 | 4.9 | 1945 | 36 | 9 | 14 |
| 3 | 18.9 | 29.1 | 1865 | 9.9 | 5.6 | 1869 | 34 | 16 | 7 |
| 4 | 19.1 | 28.9 | 1915 | 10.0 | 5.1 | 1875 | 32 | 15 | 7 |
| 5 | 18.8 | 28.3 | 1962 | 10.2 | 5.1 | 1875 | 35 | 15 | 5 |
| 6 | 19.3 | 27.9 | 1953 | 10.0 | 5.2 | 1995 | 36 | 19 | 4 |
| 7 | 19.4 | 28.9 | 1953 | 10.4 | 5.0 | 1905 | 33 | 18 | 6 |
| 8 | 19.4 | 31.3 | 1953 | 10.1 | 5.2 | 1919 | 32 | 16 | 5 |
| 9 | 19.5 | 29.6 | 1981 | 10.5 | 5.5 | 1869 | 36 | 16 | 4 |
| 10 | 19.3 | 28.3 | 1989 | 10.6 | 5.6 | 1947 | 38 | 19 | 7 |
| 11 | 19.4 | 29.9 | 1946 | 10.8 | 6.1 | 1927 | 41 | 23 | 10 |
| 12 | 19.8 | 31.7 | 1946 | 10.6 | 5.6 | 1939 | 43 | 20 | 7 |
| 13 | 19.4 | 30.7 | 1946 | 10.9 | 6.0 | 1884 | 33 | 14 | 5 |
| 14 | 19.4 | 30.7 | 1901 | 10.9 | 5.8 | 1933 | 39 | 16 | 7 |
| 15 | 19.7 | 29.3 | 1942 | 10.8 | 5.6 | 1908 | 39 | 21 | 7 |
| 16 | 19.6 | 29.9 | 1996 | 10.7 | 6.0 | 1927 | 36 | 22 | 7 |
| 17 | 19.8 | 31.4 | 1928 | 10.9 | 5.8 | 1908 | 39 | 20 | 6 |
| 18 | 20.1 | 30.3 | 1951 | 10.9 | 6.1 | 1944 | 31 | 13 | 5 |
| 19 | 20.2 | 31.2 | 1919 | 11.2 | 5.0 | 1859 | 32 | 16 | 4 |
| 20 | 20.5 | 30.9 | 1931 | 11.2 | 6.2 | 1860 | 39 | 23 | 9 |

| | | | | | | | | | |
|----|------|------|------|------|-----|------|----|----|----|
| 21 | 20.4 | 31.8 | 1907 | 11.5 | 5.9 | 1861 | 32 | 16 | 6 |
| 22 | 20.8 | 32.1 | 1898 | 11.9 | 6.6 | 1994 | 40 | 27 | 6 |
| 23 | 20.3 | 31.3 | 1907 | 11.5 | 6.2 | 1874 | 34 | 19 | 7 |
| 24 | 20.2 | 32.8 | 1907 | 11.5 | 6.5 | 1946 | 35 | 23 | 9 |
| 25 | 19.8 | 34.2 | 1980 | 11.5 | 6.1 | 1870 | 41 | 21 | 5 |
| 26 | 20.0 | 34.6 | 1965 | 11.5 | 6.2 | 1927 | 37 | 19 | 7 |
| 27 | 20.3 | 33.5 | 1919 | 11.8 | 6.7 | 1920 | 45 | 25 | 6 |
| 28 | 20.5 | 32.6 | 1987 | 12.0 | 6.4 | 1905 | 36 | 24 | 12 |
| 29 | 20.8 | 31.5 | 1937 | 11.9 | 6.3 | 1904 | 35 | 21 | 7 |
| 30 | 20.7 | 32.9 | 1973 | 12.1 | 5.6 | 1904 | 41 | 21 | 9 |

OCTOBER

| | | | | | | | | | |
|----|------|------|------|------|-----|------|----|----|----|
| 1 | 20.8 | 33.1 | 1961 | 12.2 | 6.6 | 1904 | 38 | 19 | 4 |
| 2 | 20.9 | 34.3 | 1981 | 12.3 | 6.2 | 1918 | 38 | 19 | 7 |
| 3 | 20.9 | 33.4 | 1977 | 12.3 | 5.7 | 1918 | 35 | 19 | 7 |
| 4 | 21.3 | 37.4 | 1942 | 12.6 | 6.5 | 1918 | 35 | 19 | 10 |
| 5 | 20.8 | 33.2 | 1970 | 12.6 | 7.6 | 1927 | 45 | 24 | 8 |
| 6 | 20.9 | 32.6 | 1991 | 12.5 | 5.7 | 1927 | 40 | 21 | 6 |
| 7 | 22.1 | 36.7 | 1827 | 13.0 | 7.9 | 1915 | 34 | 17 | 3 |
| 8 | 22.0 | 35.9 | 1936 | 13.2 | 7.7 | 1966 | 31 | 14 | 4 |
| 9 | 22.0 | 35.2 | 1944 | 13.3 | 6.7 | 1905 | 33 | 16 | 7 |
| 10 | 22.0 | 35.6 | 1944 | 13.3 | 7.2 | 1917 | 39 | 20 | 7 |
| 11 | 21.7 | 35.0 | 1997 | 13.2 | 8.1 | 1993 | 36 | 23 | 1 |
| 12 | 21.7 | 35.6 | 1874 | 13.0 | 7.8 | 1862 | 42 | 22 | 7 |
| 13 | 21.6 | 35.7 | 1946 | 13.1 | 7.3 | 1876 | 36 | 23 | 6 |
| 14 | 21.8 | 35.6 | 1944 | 13.4 | 7.3 | 1865 | 41 | 21 | 7 |
| 15 | 21.9 | 35.3 | 1940 | 13.5 | 8.3 | 1866 | 38 | 18 | 7 |
| 16 | 21.8 | 34.5 | 1991 | 13.5 | 8.1 | 1946 | 41 | 19 | 4 |
| 17 | 22.1 | 34.8 | 1968 | 13.4 | 8.3 | 1946 | 33 | 21 | 10 |
| 18 | 21.9 | 34.6 | 1887 | 13.4 | 8.1 | 1944 | 36 | 20 | 9 |
| 19 | 21.7 | 37.2 | 1898 | 13.6 | 8.8 | 1891 | 42 | 22 | 7 |
| 20 | 22.3 | 36.3 | 1900 | 13.9 | 8.3 | 1944 | 43 | 20 | 5 |
| 21 | 21.8 | 32.8 | 1913 | 13.7 | 8.4 | 1908 | 38 | 24 | 11 |
| 22 | 22.4 | 34.8 | 1923 | 13.8 | 7.2 | 1942 | 39 | 23 | 8 |
| 23 | 22.0 | 36.2 | 1926 | 14.0 | 7.2 | 1881 | 39 | 19 | 6 |
| 24 | 22.2 | 36.7 | 1867 | 14.0 | 8.9 | 1947 | 40 | 19 | 7 |
| 25 | 21.6 | 34.4 | 1910 | 13.9 | 7.8 | 1931 | 43 | 24 | 6 |
| 26 | 22.6 | 36.2 | 1948 | 13.9 | 8.9 | 1946 | 35 | 19 | 7 |
| 27 | 23.0 | 35.3 | 1935 | 14.3 | 7.7 | 1899 | 39 | 21 | 8 |
| 28 | 22.6 | 33.8 | 1968 | 14.3 | 7.8 | 1864 | 33 | 17 | 6 |
| 29 | 22.8 | 36.8 | 1988 | 14.4 | 8.8 | 1864 | 37 | 24 | 9 |
| 30 | 23.2 | 35.7 | 1958 | 14.7 | 8.9 | 1864 | 35 | 17 | 4 |
| 31 | 23.1 | 35.0 | 1927 | 14.8 | 9.2 | 1962 | 41 | 21 | 5 |

Source: National Climate Centre, Bureau of Meteorology.

All outdoor sports can be affected by extreme weather events. These include:

- thunderstorms with associated lightning, winds and hail;
- heavy rain that obscures targets, inhibits viewing or covers the playing surface; and
- heavy fog.

These conditions can stop play as they endanger both competitors and spectators. The Bureau of Meteorology will be providing regular and extensive weather forecasts and special bulletins during September and October 2000. This will ensure that both athletes and spectators receive adequate warnings of these extreme weather events.

Other weather conditions can affect individual sports:

- rowing is affected if the wind conditions give an unfair advantage to one or more lanes, or create waves that make the course unusable for rowing;
- sailing events are affected by wind, and therefore will only take place if the wind speed is between 5 and 25 knots (9.2 to 46.3 km/h);
- tennis can be halted by persistent or heavy rain; and
- athletics will be delayed if rain makes the surface hazardous, or makes events such as the pole vault dangerous.

In addition, in international competition, if the wind velocity (measured in the direction of running behind the competitor) averages more than 2 metres per second, a record will not be accepted.

The major influences on Sydney's climate are the topography in and around the Sydney area, the sea-surface temperature of the coastal waters, and the orientation of the coastline.

The Sydney region is bowl shaped, with the low flood plain of the Nepean - Hawkesbury River forming the central part of the bowl about 50 km from the coast. Sydney Olympic Park, at Homebush Bay, is 28 metres above mean sea level, and the highest venue is the Equestrian Centre at Horsley Park which is 100 metres above sea level.

Despite the relatively low height of the mountains (the Great Dividing Range) to the west, they have a profound effect on the rainfall of the Sydney region. South-westerly winds must pass over the mountain range before reaching the coast and will often lose their moisture on the southern and western slopes. However, a flow from the south or east finds the coast and the ranges a significant barrier. Therefore the heaviest rains in the Sydney region tend to come from these airstreams.

The major local current off the New South Wales coast is the East Australian current which brings warm water from the Coral Sea into the cooler Tasman Sea, keeping the sea surface temperatures off Sydney relatively warm.

The nearby Tasman Sea and the extensive inlets and waterways of the Sydney region also help to modify the coastal climate. As a result, Sydney has a temperate climate with warm, sometimes hot summers, cool winters and mainly reliable rainfall all year.

Sydney's climate is generally cool to mild in September and mild in October. September and October are the first months of spring, with mild to warm temperatures during the day and cool to mild nights - although the occasional hot day and cold night do occur. Humidity is moderate, both during the morning and afternoon. Only a few fogs develop in Sydney's west and these dissipate early. Thunderstorms are generally few, increasing in frequency in late spring.

September and October are among Sydney's windiest months, with an average of three and four days respectively per month experiencing winds of more than 40 km/h (22 knots). Such strong winds favour southerly to westerly directions. During October strong winds are more prevalent from the south and sea-breezes become more common.

In the Sydney region, Ultraviolet Radiation (UV) is at its most intense from late morning to mid-afternoon; the average maximum 'clear sky' UV Index value occurs in the early afternoon.

Windy days and mild temperatures characterise a typical spring day in Sydney, making it generally a season of good overall air quality and, compared to some previous Olympic cities, the climate for Sydney can be expected to be mild.

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